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A. W. FABER.

The Pencil-Lead Mines of Asiatic Siberia.

I. P. ALIBERT.

A HISTORICAL SKETCH.

1761-1861.

1865.



J. L. von Tubor.

Offizier des kaiserlich-russischen Ordens der Heiligen Anna, 1. Klasse,
 und des kaiserlich-preussischen Ordens des Adlers, 1. Klasse.

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PENCIL-LEAD MINES OF
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BY
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THE rapid progress made in the mechanical arts during the last fifty years, has brought within the reach of all classes of the present generation a host of contrivances, which, among our immediate ancestors, were either but little known, or else confined at least to the use of the wealthy few.

Among these minor contrivances the Lead-Pencil has won for itself an honorable place, both by its services in the past and its present usefulness. Few articles have contributed more to the spread of the arts and sciences. Not one can be named so nearly universal in its daily use. Our very familiarity with it tends to make us regard it with indifference. Yet the history of its origin and the processes of its manufacture are not without interest.

Like most articles that depend for their existence upon mechanical skill, the Lead-Pencil is entirely a product of modern times. The ancients knew not either the Lead-Pencil in its present form, or the use of lead in any shape for the purposes of art or of writing. It is not until the Middle Ages that we hear of lead being used for either of these purposes; nor is it then the article now made into pencils, but the *metallic lead*, which differs from the former in almost everything

except appearance. To this outward similarity, however, with the metallic lead, the pencil-lead or black-lead owes its common name,—the scientific name being *graphite*. Its composition is a mixture of carbon with a small quantity of iron.

The metallic lead was used, both by the ancients, and down to comparatively modern times, for ruling the parchment of manuscripts, and for this purpose was cast into sharp-edged disks, a shape which had the advantage over every other, that it prevented the soft metal from being easily bent. This disk was called by the Romans *præductal*, and by the Greeks *παράγραφος*, whence our *paragraph*. •

The first traces of drawings in lead are contemporaneous with the earliest development of modern art. Mention is made of works by masters of the fourteenth (the Van Eycks especially) and fifteenth centuries (Memlink and others), which appear to have been produced by some pencil-like instrument on paper surfaced with chalk. This style has been called *silver* drawing, but without good reason,—unmixed silver, at least, being, on account of its hardness, entirely out of the question. At a later period, smooth boards covered with a preparation of calcined bone-dust seem to have been used in place of the chalk-paper, but without much success.

What the Italians of the fourteenth century called *stilo*, a pencil made of a mixture of metallic lead and tin, was, however, quite frequently used at that time; it had the great and distinctive advantage, that its marks could be partially, if not entirely, rubbed out with soft bread crumbs. A portrait from life of

Petrarch's Laura is known to have been thus taken: and down even to the time of Michel Angelo this manner still remained in use, but seems never to have attained to any general acceptance.

Both for writing and drawing the quill was then the main reliance. During the palmy days of Italian art the eager search after better and less imperfect working materials resulted in the discovery and introduction of black and red chalks. Vasari, in speaking of an artist of the sixteenth century, commends the versatility which enabled him to excel at the same time in the use of the *stilo*, the quill, and of both black and red chalk.

But all these different materials were almost immediately discarded on the discovery of the celebrated black-lead mines of Borrowdale, in the County of Cumberland, England, which took place during the reign of Queen Elizabeth, in the year 1564, and was followed in the very next year by the manufacture of the first LEAD-PENCILS, substantially such as we use them at the present day.

The lead being thus a product of English soil, and all other facilities being found at hand in the industrial activity of England, already then distinguished among nations, it was but natural, that the manufacture should remain, for some time at least, an exclusively English one. Its processes were, however, very simple. The lead, as it came from the mine, was sawed into thin slabs, and these again into long strips of the requisite size, which were without further preparation glued into the wood. It is not a little remarkable that these first pencils remain to this day the best ever made, and

are not surpassed in delicacy or smoothness by any product of subsequent times. It is, in reality, this excellent quality, more even than the fact that they supplied a want so long and so urgently felt, that first established, and so long maintained, the extraordinary reputation enjoyed by the Cumberland lead-pencils in the world of art.

So important did this branch of industry soon become, that the Government thought it necessary to prohibit the exportation of the lead, and that a regular black-lead market was established in London, where, on the first Monday of every month, sufficient lead was sold at auction to meet the supposed wants of the pencil-manufacturers. The price averaged from 36 to 40 English shillings (§10 gold) per lb. avoirdupois, but the finer qualities, according to Dufrénoy, were run up as high as 400 francs (§80 gold) per kilogramme (about 2 lb. avoirdupois); and although the mine never remained open longer than six weeks in every year, yet the value of the yearly product is said to have reached £40,000,—a much more considerable sum in those days than it now seems to us. So great and perhaps exaggerated was the value of the ore, that the mines on several occasions were attacked by organized marauding expeditions from the neighboring mountains, and had to be protected by a large military force sent for the purpose by the authorities.

Although the export of the lead had been entirely prohibited, and the mine allowed to remain open only six weeks in the year, nevertheless, the continued working for a century or more gradually diminished and finally exhausted the yield, until for many

years past nothing has been obtained but impure refuse. In the natural expectation that such would be the result, and stimulated by the extraordinary value of the product of the Cumberland mine, English manufacturers and men of science have long since sought for Pencil-Lead in all parts of the world, and, indeed, discoveries have been made in Spain (at Ronda in Granada, near Malaga), in Ceylon, Greenland, California, France, Italy, in various parts of Germany, and more recently in North America, both in the New England States and in Canada, but none of them have furnished a material for pencil-making in the least to be compared to that from Borrowdale. Quite recently again a company was formed in England to continue these researches, but after several years of fruitless labor and an expenditure of about twenty thousand pounds sterling, the attempt has been abandoned.

Long before the final exhaustion of the Borrowdale mine, processes were invented for cleaning and refining the impure refuse which had at first been cast aside, and the same processes were applied to the coarser and less valuable article obtained from other sources. The purified powder was pressed into a substantial cake which could be cut like the old native ore. But the material produced by this process was found by experience to be very deficient in strength, and otherwise imperfect. A variety of ingredients were then tried, in the hope that by combining them with the finely powdered lead, the necessary consistency might be obtained without detracting from its writing qualities. Glue, isinglass, gum arabic, and almost every other gum, were tried successively, but in vain. The same was done with

almost all the highly fusible metals, notably with antimony, which at first promised well, but failed entirely. The mixture with 30 to 40 per cent. of sulphur came nearest to being a success; but even that made a very brittle composition, and the marks always remained faint.

It was not until the year 1795 that the discovery was made upon which the entire present Pencil manufacture is based. It was in France, where industry was progressing with rapid strides under the recent removal of old and obsolete restrictions, and where this branch of manufacture had then been but just introduced, that it was first suggested to mix the powdered and purified lead with *clay*. The suggestion was a most happy one, and the process at once proved a complete success. It not only restored to the powdered lead the necessary consistency, without materially diminishing its writing qualities, but was soon found to furnish also the means of making a lead of every degree of hardness or softness,—a most desirable result, which had never been attainable even with the best native Cumberland lead. Though the new process added to the complications of manufacture, it was, nevertheless, more economical, and admitted of the use of the inferior qualities of lead, which had already then and have been since discovered in a variety of localities, thus offering a combination of so many advantages, that it speedily superseded all the processes formerly in use. Although at the present day elaborated into a system of perfection scarcely recognizable as the offspring of the clumsy attempts of the first inventor, it remains in principle essentially unaltered. The lead, which comes from the different mines

in every imaginable quality, is carefully sorted, crushed, and, by a well-known process of washing or sluicing, freed from all impurities, and separated into different degrees of fineness. The clay is submitted to a somewhat similar treatment. These two essential raw materials are then spread out in shallow pans, and dried at a low temperature. They are next mixed in the requisite proportions, which are subject to constant variation according to the quality of each, and the kind of goods designed to manufacture. The mixture is then anew wetted, and ground in heavy iron mills for many hours at a time, the mills working day and night. After grinding, it is again repeatedly dried and ground anew. When the requisite degree of fineness and evenness is attained, the mass passes into the hands of skilful workmen, who knead it like dough into a cake of the requisite consistency. This cake is placed in a cast-iron cylinder, and by a severe but slow pressure is squeezed through a small hole at the bottom, from which it issues in the shape of a continuous thread, coiling itself up like a rope on a board below. This continuous thread is none other than the lead which is afterwards put into wood to make the pencil. At this stage, however, it is still somewhat soft and elastic. It is now straightened out, cut in the requisite lengths, and laid close together in layers, kept in their places and prevented from warping by a slight pressure. It is then dried in a moderate temperature, and, when perfectly dry, packed in crucibles hermetically sealed, and submitted to a high heat in ovens of a peculiar construction.

The lead is now finished, with the exception of the trying, which is the most responsible operation,

and requires the greatest skill, care, and conscientiousness. To no one but to the manufacturer himself, who alone can appreciate the value of his reputation, can this test be safely intrusted, as no amount of care and watchfulness can at all times secure correct results in processes so complicated.

After trying, the finished lead is ready for the wood. This is chiefly cedar-wood, — none other having been found that possesses in the same degree the two essential qualities of extreme fineness of grain, and perfect softness under the knife. The immense blocks of cedar, the best of which comes from Florida, are cut up into small strips of the length, and a little more than half the thickness of a pencil; the groove, of the size of the lead, is cut into them with a plane, the lead glued in, a similar strip of wood glued over it, and the pencil is to all intents and purposes finished. It still, however, has to undergo all that large variety of processes, which change it from a rough, square stick covered with glue, into the smooth, polished, rounded or cornered, stamped, gilt, headed, and, in fact, completed article, which every one handles with pleasure and satisfaction, without pausing to consider how many industrious pairs of hands have contributed to its production.

To any one familiar with the leading characteristics of the principal modern nations, even this slight and imperfect description will amply explain why the Pencil manufacture, beginning in England, and improved in France, should have made its final home in Germany. It is a manufacture in which success depends preëminently upon constant watchfulness and the most

conscientious care,—and these are the qualities which distinguish the German race above all others.

Already at a very early period in the history of Pencil-making, this industry had been transplanted to Germany, and as far back as 1726, the parish registers of the little village of Stein, near Nürnberg (where A. W. Faber's factory is now located), record marriages of "Pencil-Makers," and of "Black-Lead Cutters," male and female,—both men and women being then, as now, engaged at this labor. But for many years the manufacture languished, and made no progress. The complete isolation from the outer world, to which political animosities and sectional divisions had reduced the petty German States, prevented the introduction and adoption of foreign improvements; while a bigoted adherence to the antiquated system of guilds crushed out all competition at home, and with it all opportunities for domestic progress.

Under such untoward circumstances did Pencil-making first take root in the country destined to be its chief home; and under like unfavorable auspices was the foundation laid of that establishment which has since become the largest of the kind in the world.

In the year 1760 CASPAR FABER settled in the little village of Stein, near Nürnberg, and in 1761 commenced the manufacture of "Faber's Pencils," which have since made the name of this insignificant village a household word wherever civilization has carried that most modest, but almost indispensable companion, the Lead-Pencil.

In 1761 the entire estate of the founder consisted of a small cottage-house surrounded by a garden-

lot, and the weekly product of his factory was carried to Nürnberg, or Fürth, in a hand-basket, and there sold. But the high prices paid even then for his goods furnish the best proof of their early superiority.

In 1784 ANTHONY WILLIAM FABER, whose name the firm bears to this day, succeeded his father, Caspar Faber.

In 1786 a judicial inventory, religiously preserved in the family archives, shows the entire personal property of the family to have amounted to "Fifty-Nine Florins," or about twenty-five dollars in gold.

In 1810 Anthony William Faber was in turn followed by his son, GEORGE LEONARD FABER, father of the present proprietor. Under his able management great progress was made, many improvements were suggested and carried out, some of the processes of manufacturing were systematically elaborated and perfected, and a number of intelligent and thoroughly schooled workmen gathered around the firm. But during his lifetime the commercial relations of all Europe were most unfavorable to progress, or even stability; and at his death the annual sales of the factory had fallen off again to the insignificant sum of 12,000 florins, and the workmen employed numbered no more than twenty.

It was under these inauspicious circumstances that the present proprietor, the fourth in direct descent from the original founder of the factory, assumed the management.

JOHN LOTHAR FABER, born the 12th of June, 1817, had at an early age mastered the details of his father's business, but oppressed by the contracted commercial relations of the times, amid which the entire

manufacturing interests of South Germany remained isolated from the rest of the world, had sought in Paris and London the experience and the connections necessary to that development of his father's business, to which his ambition prompted him. At the age of twenty-two the sudden death of his father recalled him home, and in August, 1839, he assumed entire charge of the affairs of the house, which, under his management, have experienced a development and attained to a success almost without example in the annals of manufacturing industry. With an enthusiastic earnestness and a far-sighted system that could not fail of success, he began his work. Guided by his motto, —

Truth. Right. Thrift.

he first sought, by the most conscientious labor and the most unwearied industry, to still further improve the quality of his products, and to compel, by their unvaried excellence, the implicit confidence of both dealers and consumers. He aimed at the highest standard, and was not satisfied until he had secured the approval of the most critical. Artists of world-wide renown. — Cornelius, Kaulbach, Bendemann, Lessing, Horace Vernet, — took pleasure in commending his Pencils, and in lending the invaluable aid of their great names to the indorsement of his growing reputation. Having succeeded thus far, he travelled over the whole of Germany, over Russia, Austria, Belgium, Holland, France, England, Italy, and Switzerland, and succeeded in establishing in each of these countries close business relations, which remain to this day the pride and pleasure of his house. In thus advancing his own interests, he rendered essential service to the entire manufacturing interests of his native

State. Not only did many of the connections acquired by him become available for other branches of industry, but the example of his successful enterprise proved an encouragement and stimulus to many, who in their turn sought and found in other countries both an outlet for their products and the beneficial impulse of an extended competition. It is no doubt partly in appreciation of this national result of Mr. Faber's enterprise, that the Government of his State has at different times tendered him those honors which it is in the power of a government to bestow, and whose chief value consists in the very services of which they are but an official recognition. To other previous honors bestowed on Mr. J. Lothair Faber, the King of Bavaria has quite recently added a patent of nobility.

The extended commercial relations established by the travels of the head of the house did not, however, long suffice for the growing business of the firm; and Mr. J. Lothair Faber soon enlisted with him the services of his two younger brothers, who had been destined by their father for other pursuits. Mr. John Faber, the older of the two, remained with him in Stein, to aid in the management of the factory; while the younger, Mr. Eberhard Faber, removed to the United States, — the daily increasing business with which country seemed to call imperatively for a more intimate connection. He established a branch house in New York, in which is centred the trade of the United States, the Canadas, Central and South America, and the West Indies. Similar reasons speedily called for a like establishment in Paris, which was in turn followed by still another in London; concentrating in the latter the trade

of England itself, of Australia, the East Indies, and other British colonies. The supplying of Germany, Italy, Russia, of the rest of Europe, and the East, is carried on from the factory direct.

While thus, under the patient and fostering care of the present proprietor, the reputation of his goods grew and expanded, taxing his enterprise to provide for their distribution, the factory itself in like measure grew and expanded. Each year called for additions and enlargements; until the establishment, once contained in a small cottage-house, all too large for its wants, now seems an entire village of factories rather than a single one. But this increase was not one of brick and mortar alone, of smoke-stacks and steam-engines; it was — more important by far — an increase of living, human beings, for whose health, comfort, and general welfare the proprietor held himself responsible.

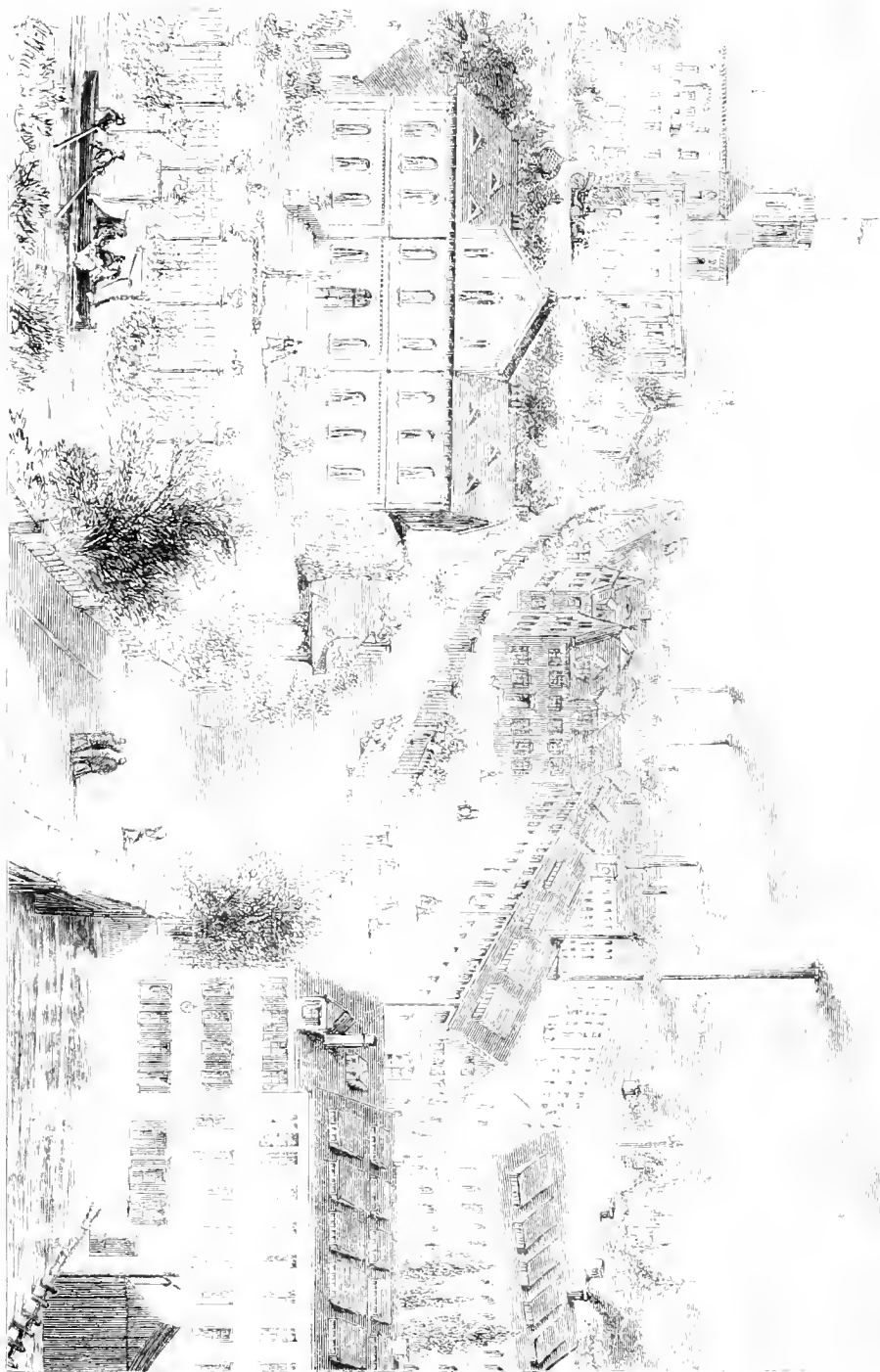
The new factory buildings were habitually constructed with this view. The entire inner organization was based upon strict rules of justice, and subjected to regulations known to every one, and from which every one derived some benefit. A liberal increase of wages, after a certain number of years' employment, guarantees to all an increasing competence as an incentive to steady labor. New and commodious dwelling-houses were built for the operatives, and let on favorable terms to such as chose to occupy them, subject only to a few simple rules, which all comply with cheerfully.

A Savings Bank was next established, which receives the smallest contributions, and pays interest as soon as the deposit reaches the small sum of two dollars. It is almost universally availed of by the work-people,

and has had a most beneficial influence on their character, their comfort, and even on the quality of their work,—the largest depositors being also generally the most reliable workmen. To guard against the necessity of drawing the deposits except in urgent cases, a sick fund is formed, chiefly from the fines and penalties for contravention of the factory or house rules. This disposition of the fine-money renders its prompt payment a matter of general interest, and serves in its turn to throw the enforcement of the rules upon the workmen themselves.

For the benefit of all,—men, women, and children,—a library was founded, which is very extensively patronized. A child's nursery takes charge, during working hours, of the young whose mothers are unwilling, or cannot afford, to give up working in the factory: for the older children, a large new schoolhouse has recently been built, and every facility is furnished for their improvement. An open air gymnasium, in the midst of a little wood, gives the opportunity for many a festive gathering, to which two singing societies and a cross-bow club lend animation and harmony. In all out-of-door sports the son and nephews of the proprietor take their places in the ranks with other boys: and he himself, with all his family, takes pleasure in sharing, with all his workmen and their families, their simple feasts and entertainments. He himself dwells near them, and truly in their midst. The gardens and parks surrounding his house and that of his brother John enclose the factory buildings on three sides, while the river Rednitz runs between them and the village itself. The slight eminence on which the dwell-

VIEW OF A. W. FABERT'S LEAD PENCIL FACTORY, STEIN, NEAR NURNBERG, BAVARIA.



inghouse is built makes its turreted roof a prominent object on the northern bank of the little stream, while the pointed Gothic spire of a bright, cheerful church at the southern end of the village, — another recent gift from the proprietor, and visible for miles around, — throws over the entire neighborhood a halo of peace, quiet, and plenty.

Surely the existence of such a village family of industrious working men, women, and children, whose products travel to the farthest ends of the civilized globe, cannot be devoid of interest; nor is it, surely, an unjustifiable pride with which the manufacturer refers to the festival held in that village on the 16th of September, 1861, and kept as a holiday for miles around. On that day was celebrated the hundredth anniversary of the establishment of A. W. Faber's manufactory in Stein.

On the eve of the 16th, all the factory workmen, in a long torch-light procession, moved through the gaily decorated and illumined village, and through the gardens and parks to the open space in front of the proprietor's dwelling-house, and, after the singing of appropriate songs composed for the occasion, presented him, by the hands of the oldest among their number, with a beautiful album containing copies of the songs just sung, and of the address delivered, together with the names of every one in the employ of the house. Among them were families of whom four generations have worked and toiled, and still work and toil, on the same spot and for the same family; and when the proprietor thanked them for their numerous proofs

of attachment to him and all his house, many a gray-bearded face was wet with tears.

Early on the morrow all gathered around the house of Mr. Johann Faber, and received from his hand a simple present suited to the age and sex and wants of each, and a bronze medal, struck in commemoration of the event, bearing the names of the successive proprietors and a short inscription with the date. From here the procession, led by all the members of the family, passed to the new church, which had been solemnly consecrated only two weeks before, and amid the festive ringing of the chimes ranged themselves along the cheerful aisles. After the services a military band received the departing congregation, and at the head of the procession led the way back through the village to the greensward of the park, where the rest of the day was spent in hearty rejoicings and innocent merriment. Long tables were set along the lawn for dinner; all the amusements of a country fair were scattered around the park, whose walks and arbors and summer-houses were gaily decorated and covered with mottoes and inscriptions commemorative of events in the history of the house and of its founders. In other parts races, wrestling, and climbing matches, dancing, singing, and speech-making, furnished entertainment for all. From far and near had come the friends of the workmen, of the house, and of the family, to share in the enjoyment and to express their sympathy and interest.

Near the main entrance to the house a tribune, decorated with the marble busts of the last proprietor and his wife, was the scene of a variety of addresses and presentations from members of the family,

artists, business friends, deputations from the Nürnberg Mechanics' Institute and others, followed by the reading of a characteristic autograph letter from the reigning King of Bavaria, handed to Mr. Faber in the midst of the festivities:—

“HOMBESCHWANGAU, September 11th, 1861.

“On the 16th inst. you celebrate, I am told, the centenary anniversary of the founding of your factory, an establishment whose well-earned reputation at home and abroad is an honor to the entire industry of Bavaria. The knowledge of the care which you devote to the comfort and well-being of your work-people is to me a source of especial gratification. The festival you are about to keep affords me the opportunity to offer you my congratulations, and to express the hope that the establishment conducted by you with so much success in the past may enjoy continued prosperity in the future.

“With sincere good wishes

“Your affectionate King

MAX.”

“MR. J. LOTHAR FABER, STEIN.

This kind and thoughtful letter elicited three hearty cheers for the king, in which all present enthusiastically joined.

The neighboring citizens of Nürnberg soon after added another to the many pleasant memories of this eventful day, by presenting to Mr. Faber, by the hands of three of the most eminent among their number, the freedom of that ancient city, “in acknowledgment of his many distinguished services in the cause of Nürnberg's commerce and industrial reputation.” But the most touching event connected with this celebration was the erection, by the villagers, of a memorial tablet in the little church. It consists of a

bronze tablet with a bas-relief bust of the proprietor of the factory, and commemorates his gift to the village of the church itself. The ceremony was accompanied by the presentation to him of an engrossed copy of a trust-deed, by which a fund raised among the more wealthy men of the little village is devoted to the payment of a choir of boys, who ever after will keep his birthday by the singing of hymns at break of day beneath his window, while he lives, and over his grave after his death.

The festivities of the celebration closed at a late hour with a general illumination and a series of fireworks, after which the assembled multitudes separated with the kindest and heartiest wishes for the future prosperity of the factory.

The difficulties that the Pencil Makers met with, when, in the earlier history of this branch of industry, they sought to discover a substitute for the exhausted native Cumberland lead by combining various substances with the inferior lead obtained from other localities, have already been described. Reference has also been made to the persevering searches carried on in different parts of the world for a lead that might take the place of that from the Borrowdale mines, all of which were failures. It is the object of these pages to chronicle the final success of one of these endeavors, a success of the most perfect kind, due partly to accident, but mainly to the intelligent perseverance of the discoverer, and which it is the pride of the house of A. W. Faber to have aided and rendered possible by their pecuniary support.

John Peter Alibert, a French merchant residing in Tawasthus, in Asiatic Siberia, started in the year 1846 on a business tour through the mountainous regions of Eastern Siberia, and tempted by the uncertain but exciting reports then beginning to be heard, of gold discoveries in California, carefully examined the sandy beds of the rivers Oka, Belloi, Kitoi, and Irkutsk, all flowing into or towards the Arctic Ocean. In one of the mountain gorges near Irkutsk he discovered among the sand, samples of pure graphite, showing by their smooth, round form and brilliant polish that they had evidently been brought from a great distance by the stream. Alibert immediately recognized the importance and the value of this material, and pursuing now his researches systematically, followed up the stream and all its tributaries to their fountain heads, until, in the year 1847, his enterprise and patient labor were rewarded by indubitable evidence, that in one of the branches of the Saian mountain range, on the very summit of Mount Batougol, four hundred Russian wersts (about two hundred and seventy English miles) west of the town of Irkutsk, near the Chinese frontier, there existed an extensive deposit of primitive graphite.

He at once proceeded to open a mine, at a point where the surface indications seemed most favorable. But the undertaking was one of immense difficulty. Mount Batougol rises in the centre of an all but desert rocky mountain range. Men, material of every kind, food for man and beast, had to be brought on the backs of reindeer from points hundreds of miles distant. But Alibert was not to be daunted. He en-

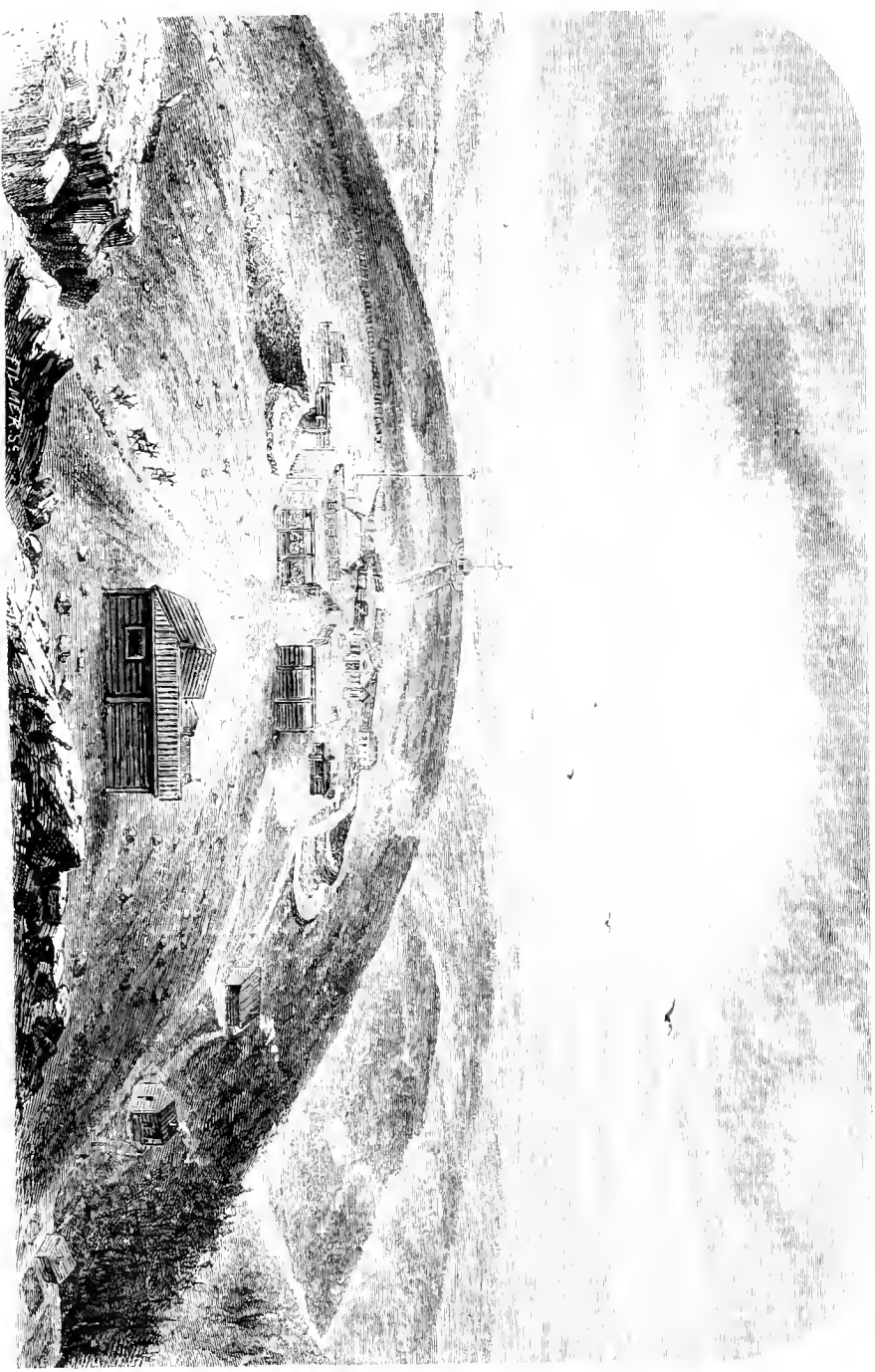
closed sufficient land for a little farm at the foot of the mountain, in order to raise the most necessary produce; he built one hut after another for the increased number of his workmen, and gradually gathered around him a little colony with whose aid he patiently persevered in his enterprise. After seven years of labor, and after blasting out and bringing to the surface hundreds of tons of the granite rock, and immense quantities of inferior and impure lead, resembling exactly the refuse from the Borrowdale Mines, he at last had the satisfaction of disclosing an unbroken layer of the purest and most superb graphite, from which solid pieces, weighing eighty pounds and more, could readily be taken.

The attention of the ever-watchful Russian Government was soon directed to his undertaking. Count Mourawiew Amursky, Governor-General of the Province of Irkutsk, encouraged and aided him by many marks of special favor. On proceeding to St. Petersburg, he was most graciously received by the Grand Duke, heir to the throne, and by the Emperor himself. By order of his Majesty he was presented with a silver medal, and decorated with the ribbon of the Order of Saint Stanislaus. The Imperial Academy of Fine Arts in St. Petersburg, to whom the samples of his graphite were submitted for examination, returned the following report:—

[TRANSLATION.]

The undersigned, members of the Committee of the Imperial Academy of Fine Arts, after having examined the samples submitted to us of the native graphite discovered in Siberia, by Mr. Alibert, hereby certify, that we find this graphite to be

MOUNT BATUGOL, NOW MOUNT ALBERT, WITH THE ALBERT MINE, SIBERIA, ASIA.



of excellent quality for drawing-pencils of every kind, and that it not only by far surpasses that used at present in the manufacture of all other lead-pencils, but is equal, nay, superior even, to that formerly obtained from the now exhausted mine of Borrowdale, the pencils made from which enjoy such a high reputation throughout Europe.

PETERSBURG, March 3d, 1856.

Signed: *Vice President*: COUNT THEODORE FOLSTOI.
Rectors: CONSTANTINE TOON, BRUNL. *Professors*: A. BRULOW,
 BARON KLODT, A. MARKOW, A. STACKENSCHNIDER, NEFF, O.
 ZAVIALOFF, N. OUTKIN and JORDAN.

The Governor-General of the Baltic Provinces, Baron Lieven, and the President of the Imperial Geographical Society of Russia, addressed him flattering letters, and Mount Batougol, the scene of his interesting labors, was named in his honor Mount Alibert.

Encouraged, but not satisfied, by these acknowledgments, Alibert next went to England. He visited and carefully examined the exhausted Cumberland mines, and satisfied himself that no further supplies could be expected from them. He submitted samples of his lead to all the prominent pencil manufacturers there, and their verdict unanimously confirmed the report of the St. Petersburg Academy. Englishmen of science were much interested in his discoveries, and his collections of graphite, and other rare minerals, gathered in his extensive travels in Siberia were deposited in London in the South Kensington Museum, the British Museum, and the Museum of Practical Geology in Jermyn Street.

France, always ready to recognize merit of any kind, and specially interested in the important discovery

made by one of her sons in a distant foreign country, took pleasure in distinguishing Mr. Alibert. He soon became the recipient of numerous letters of congratulation; the Emperor decorated him with the Cross of the Legion of Honor, and the Society for the Encouragement of the Arts and Sciences, at a later period, awarded him a gold medal, and published in their Proceedings a lengthy Report, by the President of the Society (M. Dumas, Senator and Member of the Academy), from which Report the following paragraphs of general interest are quoted:—

[ORIGINAL.]

“ PARIS, 30 Mars, 1864.

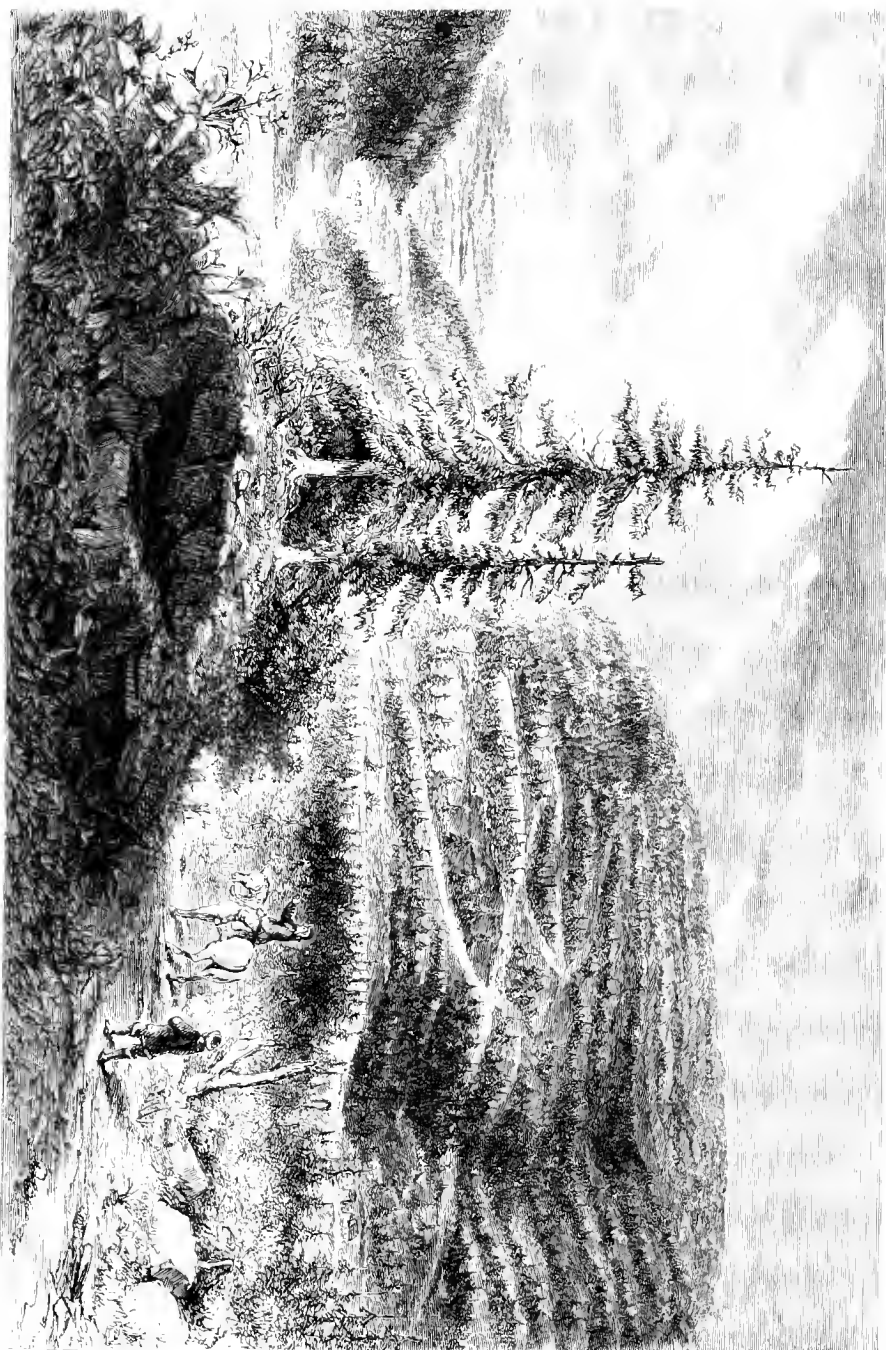
“ On sait que les célèbres mines de Borrowdale, dans le Cumberland, aujourd’hui épuisées, et qui ont pendant longtemps alimenté l’Europe, ont produit annuellement deux millions et demi de bénéfice, et presque un million encore dans les dernières années.

“ Il est permis de croire, en voyant la puissance des masses, la pureté et la belle nature des produits de la mine mise en exploitation par M. Alibert, qu’elle est destinée à prendre dans le commerce européen la place que la mine de Borrowdale y occupait.

“ Rien ne nous met sur la trace, quant à présent, des procédés dont la nature s’est servie pour la production du diamant, quoique son plus proche voisin, le silicium, ait été obtenu en cristaux, et si diverses circonstances permettent de soupçonner la manière dont les masses de graphite que la nature nous offre ont été formées; il n’en est pas moins certain qu’une fabrication économique du graphite est loin de toute probabilité présente.

“ Dans ces circonstances, une découverte et une exploitation, déjà assurée sur une grande échelle, qui mettent à la disposition de l’industrie et des arts le graphite qui vient remplacer si à propos pour leurs besoins celui que leur procurait

THE ASCENT TO MOUNT ALBERT.



depuis si longtemps la mine de Borrowdale, sont, au plus haut degré, dignes de l'attention de la Société d'Encouragement.

[TRANSLATION.]

“It is known that the celebrated mines of Borrowdale, in Cumberland, now exhausted, but which for many years supplied all Europe, have yielded profits of two millions and a half of francs per annum, and even quite recently of a million of francs per annum.

“It now seems likely, judging by the solidity, volume, the purity, and the superb quality of the product of the mine worked by Mr. Alibert, that the latter is destined to fill the place formerly occupied in the commerce of Europe by the Cumberland mine.

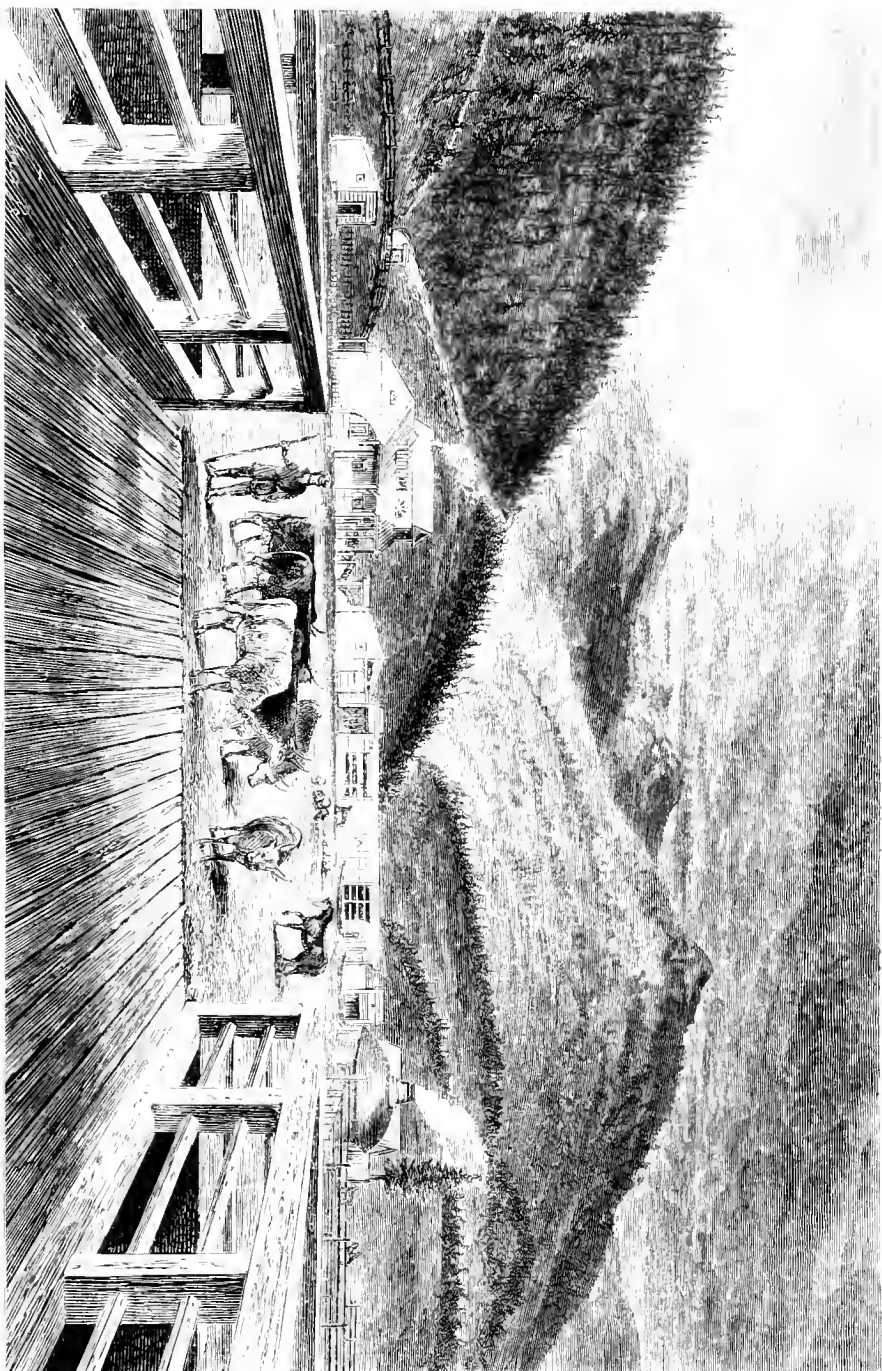
“Science is unable as yet to trace the processes by which Nature creates the diamond, but she has herself succeeded in producing in the crystallized state *silicium*, its next-door neighbor, as it were. So, too, we may form some conception of the manner in which the graphite that Nature furnishes us has been created; but we must not therefrom infer that there is the least present prospect of our being able to produce it by artificial means. Hence an enterprise like that of Mr. Alibert, which opportunely furnishes the arts and sciences with a material so long obtained from Borrowdale alone, is in the highest degree deserving of the attention of your Society.”

So general was the interest created by the important discoveries of Mr. Alibert, the boldness of his undertaking, and the beauty and value of the specimens and collections presented by him to the different museums and learned societies, that he was further honored by the bestowal upon him of the Order of Charles III. on the part of the Queen of Spain, and the Order of the Dannebrog on the part of the King of Denmark; and by the reception of letters from the King of Prussia, from the Pope Pius IX., from Cardinal Antonelli,

from the Secretary of State of Sweden and Norway, by order of the King, and from a number of other persons of rank and distinction in the world of science and art.

Flattering and gratifying as these honors naturally were to Mr. Alibert, they alone were not, of course, a sufficient reward for eight years of incessant labor and the expenditure of a million of francs. That reward could only be obtained by rendering his discovery practically available, especially for the manufacture of pencils, for which purpose the lead is more valuable than for any other. He addressed to the house of A. W. Faber, as the manufacturer most generally known for the superior quality of his goods, a proposition to furnish him exclusively with the new Siberian lead, which offer, after a thorough examination of the new material, and after acquiring the conviction that it equalled in quality the best early product of the Cumberland mine, was promptly accepted. In 1856 a contract was formally entered into, and indorsed and sanctioned by the Russian Government, in accordance with which the Siberian lead, in so far as suitable for the manufacture of pencils, is furnished now and for all future time to the house of A. W. Faber alone.

Alibert now returned to the mines, and pushed his labors with increased activity. The farther he opened up the mine, the more the quality and purity of the lead improved. Large blocks of unbroken surface, and bright like polished steel, were taken out, and after several years of additional labor, the first extensive shipment of over 100,000 lbs. of the precious material could be forwarded to the factory. The difficulties of transporta-



WORKMEN'S FARM AT THE FOOT OF MOUNT ALBERT.

tion were enormous. Carefully packed in stout wooden boxes, part of it was carried on the backs of reindeer to the Amoor River, an enormous distance, over territory in which even the semblance of a road is unknown, and thence by sea to European ports; part travelled the entire distance overland, from the very centre of Asia to the little village of Stein, near Nürnberg, where, a century before, in the little cottage-house with its garden-plot on the Rednitz River, had been planted the first germ of this surely magnificent enterprise.

Henceforth the success of the undertaking depended mainly upon the manufacturer. But in spite of his individual experience of nearly a quarter of a century, in spite of his familiarity with every process and every experiment tried by himself and others, it yet required five years more of incessant labor and study before he had successfully mastered the difficulties of the new material.* It was only in the year 1861 that he was able to place upon the market the first samples of pencils made with the new Siberian lead,—fifteen years after the first discovery of the material itself in the mountain gorges of Siberia by Mr. Alibert, searching for gold. So slow was the growth of an enterprise, destined, it is hoped, to be permanent.

It seems almost needless to say, that the success of the new Siberian Lead-Pencils was complete. At the London Exhibition of 1862, where they were first shown in quantities, they were awarded two medals in Class XXVIII: one to Mr. Alibert, for "excellence of pencils made from natural Siberian graphite," and one to Mr. Faber, for "black-lead pencils of excellent quality made from the newly discovered Siberian graph

ite." Mr. Alibert further received a medal in Class I. "for his meritorious development of the fine graphite of Irkutsk, his display of the same, and of the splendid block of nephrite." The Report of the International Jury of the same Exhibition contains the following:—

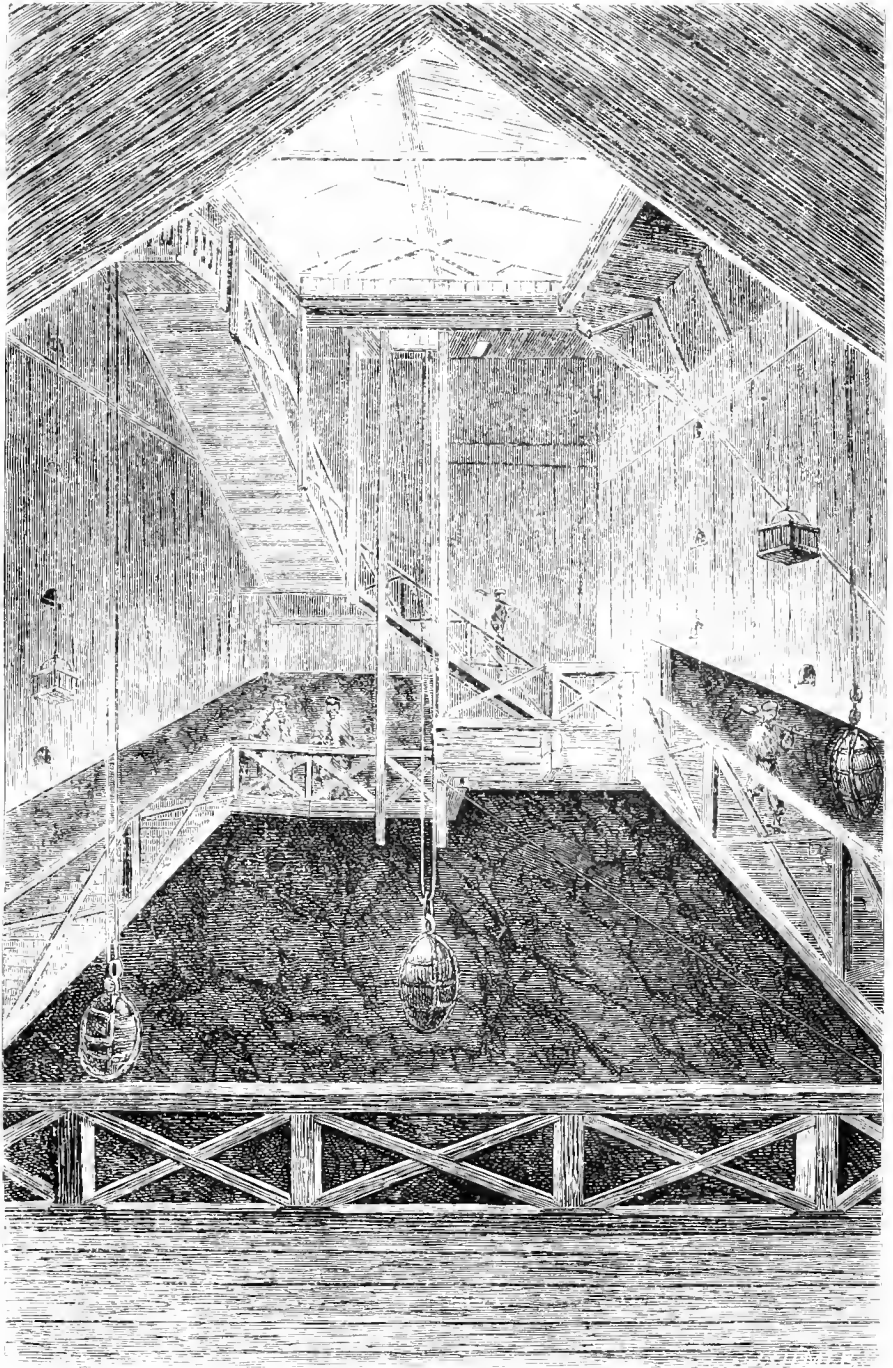
"Since the Exhibition of 1851, where the deceased Mr. Brockedon displayed cakes of compressed dust of the Cumberland graphite, no progress has been made in the process of making lead-pencils. The Exhibition of 1862, however, points out to manufacturers of this article a new source of graphite, introduced to the public by Mr. J. P. Alibert, who has successfully explored the mines of Siberia, and discovered a graphite possessing various degrees of hardness and of blackness suitable for the manufacture of pencils. Mr. A. W. Faber, of Bavaria, who has done so much to improve the mechanical processes of the pencil manufacture, has been the first to employ the new material, and already produces pencils of great excellence made of this mineral."

The French Society for the Encouragement of the Arts and Sciences, who had awarded Mr. Alibert a gold medal for the discovery of the lead, now published in their "Proceedings" a Report from the pen of Baron de Silvestre, Chairman of the Committee on Fine Arts, upon the pencils, from which the following passages are quoted:—

[ORIGINAL.]

"PARIS, 4 Mai, 1864.

" . . . Sans préjuger de l'avenir du graphite, en égard aux avantages qu'en pourront tirer la science et l'industrie, nous pouvons dire que ce sont les beaux-arts qu'intéresse le plus, aujourd'hui, la découverte de M. Alibert. On sait, en effet, que



HEAD OF SHAFT IN THE ALIBERT MINE.

la fabrication des crayons, fabrication qui est d'une utilité si générale, souffrait chaque jour d'avantage de la privation de bon graphite depuis l'entier épuisement des mines de Borrowdale dans le Cumberland.

" . . . M. Alibert a présenté de nombreux échantillons de crayons, obtenus avec son graphite, à votre Commission, qui les a examinés avec soin et les a soumis à des épreuves multipliées. Elle est d'avis que ces crayons ne laissent rien à désirer, et qu'ils peuvent parfaitement répondre, non-seulement à tous les besoins, mais même à toutes les exigences des consommateurs.

" . . . Les crayons que votre Commission a eus dans les mains sont sortis des ateliers de M. Faber. Ce fabricant, bien connu de vous, et qui, depuis longtemps, est en position de fournir d'excellents crayons au commerce, est le seul qui emploie le graphite de Sibérie. M. Alibert lui a livré, pour une première fois, il y a un an, environ 50,000 kilogrammes de graphite."

[TRANSLATION.]

" . . . Without prejudice to the other purposes for which graphite is now employed, or for which science and industry may still further render it available, we may yet say, that for the present it is the Fine Arts that are the most interested in Mr. Alibert's discovery. It is, in fact, well known that the manufacture of lead-pencils, a branch of industry so generally useful, has been daily more and more oppressed by the want of good graphite, ever since the complete exhaustion of the mines of Borrowdale in Cumberland.

" . . . Mr. Alibert has submitted to your Committee numerous samples of pencils made from his graphite, which have been carefully examined and submitted to repeated tests. Your Committee are of opinion that these pencils leave nothing to be desired, and must thoroughly satisfy not the wants only, but the wishes even, of those who use them.

" . . . The pencils that your Committee have examined came from the manufactory of Mr. Faber. His house, well

known to you, and for many years past engaged in furnishing commerce with excellent lead-pencils, is the only one that receives the Siberian graphite. Mr. Alibert supplied him, about a year ago, with a first shipment of 50,000 kilogrammes (about 110,000 lbs.) of this material.

“PARIS, May 4, 1864.”

Further samples of the new pencils were submitted by Mr. Faber to the leading European artists. Horace Vernet, who years ago had been among the first to cheerfully lend the aid of his indorsement to the products of the factory, then just emerging into extended fame,—Horace Vernet was since deceased. But friends almost as old as he—Cornelius, Kaulbach, Lessing, whose friendly support to A. W. Faber dated back as far as his, as well as many others, younger in fame as well as years—were again ready to show their interest in the success of the manufactory at Stein, and wrote, both to Mr. Faber and to Mr. Alibert, many letters of encouragement and approval, some of which, in the original as well as translated, are here appended.

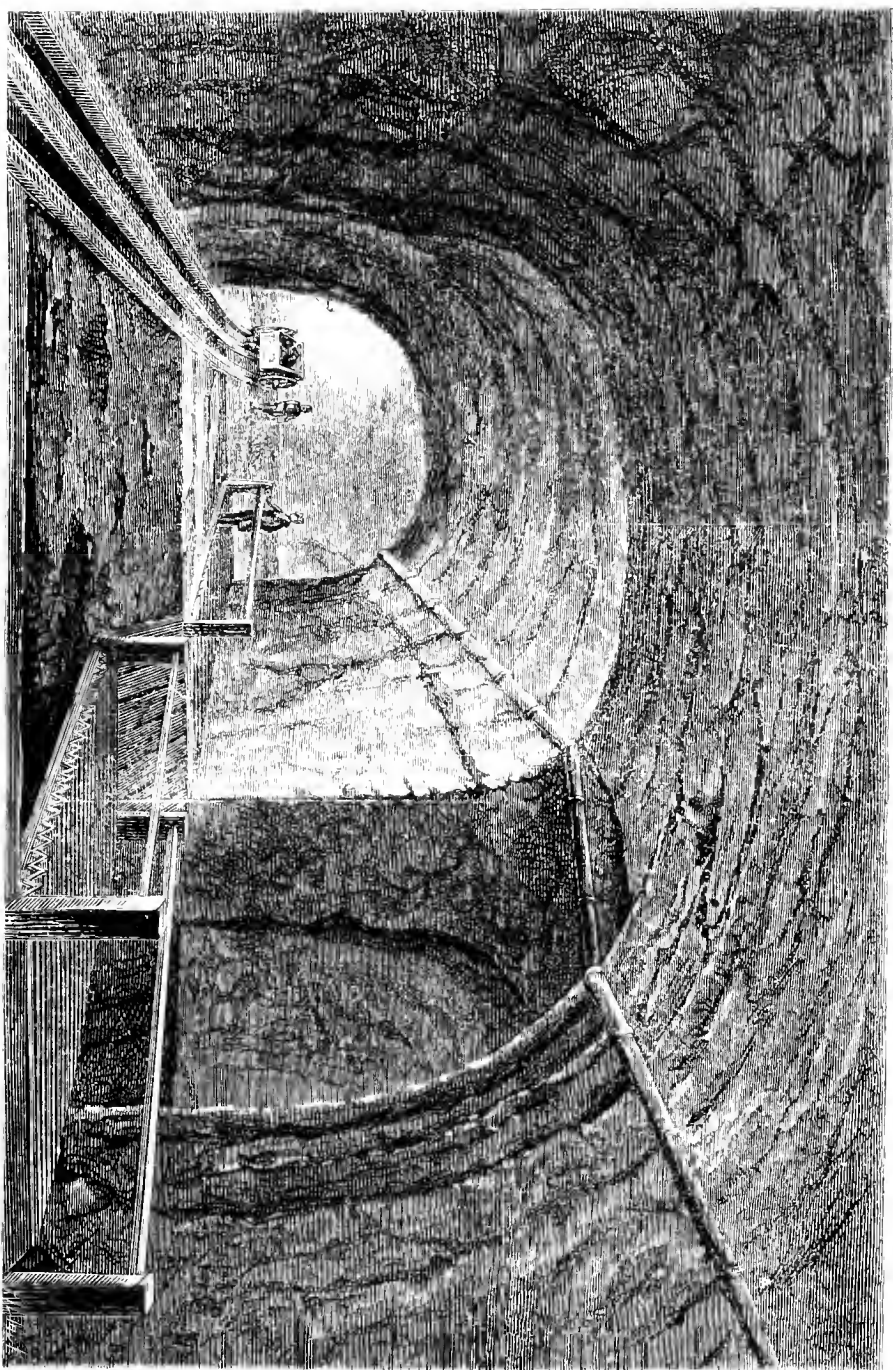
EXTRACT OF A LETTER FROM J. D. A. INGRES, SENATOR AND
MEMBER OF THE FRENCH INSTITUTE.

“MEUNG-SUR-LOIRE, 10 Novembre, 1863.

“Je ne puis qu'ajouter mon approbation aux honorables éloges qui accompagnent la série complète de vos excellents crayons, d'une qualité supérieure. Cette découverte toute industrielle est due à votre infatigable persévérance, et assure aux artistes des moyens faciles et agréables pour dessiner.”

[TRANSLATION.]

“I can but indorse the flattering testimonials accompanying the complete series of your excellent pencils of superior quality. This discovery, entirely industrial in its character, is



PRINCIPAL GALLERY IN THE ALBERT LEAD-MINE.

due to your untiring perseverance, and secures to us artists an agreeable and useful drawing material."

EXTRACT OF A LETTER FROM E. ISABEY.

"PARIS, 20 Novembre, 1863.

"Je suis heureux de certifier que les crayons marqués A. W. Faber, et fabriqués avec le graphite de Sibérie de la mine Alibert, sont les meilleurs crayons, et bien préférables à toutes les fabrications connues jusqu'à ce jour."

[TRANSLATION.]

"I take pleasure in certifying that the pencils stamped A. W. Faber, and made of the Siberian graphite, from the Alibert mine, are the best of pencils, and much to be preferred to all heretofore known."

EXTRACT OF A LETTER FROM W. VON KAULBACH.

"MÜNCHEN, den 7ten Januar, 1864.

"Ihre ganz vorzüglichen Bleistifte aus sibirischem Graphit habe ich erhalten, probirt, und sogleich in Gebrauch genommen. Ich finde, dass sie von gleichmässiger Feinheit, Kraft und Geschmeidigkeit sind; ja sie scheinen mir die besten zu sein, die ich bis jetzt in Händen hatte, und sie entsprechen allen Anforderungen des Zeichners."

[TRANSLATION.]

"Your very excellent pencils of Siberian graphite have been received, tried, and at once put in use. I find that they are of even fineness, strength, and smoothness; nay, they seem to be the best I ever had in my hands, and they respond to all the needs of the draughtsman."

EXTRACT OF A LETTER FROM C. F. LESSING.

"CARLSRUHE, den 20sten Januar, 1864.

"Ihre Zusendung von neuen Bleistiften aus sibirischem Graphit war gerade zu einer Zeit angekommen, wo meine Beschäftigung ausnahmsweise derart war, gleich einen anhaltenden

Versuch mit denselben anstellen zu können, und wobei ich mich gründlich überzeugt habe, dass Ihr neues Fabrikat von der härtesten bis zur weichsten Nummer alles früher mir bekannt gewordene bei Weitem übertrifft, und mir nichts zu wünschen übrig lässt."

[TRANSLATION.]

"CARLSRUHE, January 20, 1864.

"Your samples of new pencils made from Siberian graphite reached me precisely at a time when the exceptional nature of my occupation permitted of my giving them a sustained trial. I have become thoroughly convinced that this new article in all its grades, from the hardest to the softest, far surpasses everything heretofore known to me, and really leaves nothing to be desired."

EXTRACT OF A LETTER FROM J. L. E. MEISSONIER.

"POISSY, près PARIS, 26 Janvier, 1864.

"J'avais quasi renoncé à avoir de bons crayons, et depuis ceux que vous m'avez envoyés, faits avec votre magnifique graphite, je suis tout à fait heureux; il me sera désormais impossible d'en employer d'autres."

[TRANSLATION.]

"POISSY, near PARIS, January 26, 1864.

"I had about given up all hope of ever having good pencils, and am perfectly happy at receiving those which you have sent me, made from your magnificent graphite; it will be impossible for me hereafter ever to use others."

EXTRACT OF A LETTER FROM P. VON CORNELIUS.

"BERLIN, den 18ten Februar, 1864.

"Mit Vergnügen bestätige ich, dass sich die Fabrikation all' Ihrer Bleistiftsorten immer mehr und mehr vervollkommen hat. Ihre neuen Bleistifte aus sibirischem Graphit sind so vortrefflich, dass sie nichts zu wünschen übrig lassen."

[TRANSLATION.]

“BERLIN, February 18, 1864.

“I take pleasure in stating that all the pencils of your manufacture have steadily improved in quality. Your new pencils from Siberian lead are so excellent that they leave nothing to be desired.”

EXTRACT OF A LETTER FROM GUSTAVE DORÉ.

“PARIS, 7 Juillet, 1864.

“Je trouve excellents en tous points les crayons A. W. Faber en graphite de Sibérie que vous avez eu l'obligeance de me faire remettre, et dont je me suis servi pendant ce dernier mois. Je les reconnais surtout comme très supérieurs pour le dessin sur bois, dont je m'occupe spécialement, et de beaucoup préférables à tous les crayons que j'avais employés jusqu'à ce jour. Je les recommande donc particulièrement aux artistes qui s'occupent de ce genre de travaux.”

[TRANSLATION.]

“The pencils manufactured by A. W. Faber from Siberian graphite, which you were kind enough to send me, and which I have had in use for the last month, are in every respect excellent. For drawing on wood, in which I am principally engaged, they are especially good, and by far superior to any pencils I have heretofore used. I recommend them strongly to artists engaged in this class of work.”

EXTRACT OF A LETTER FROM FRIEDRICH OVERBECK.

“ROM, am 7ten December, 1864.

“Ich kann Ihnen sagen, dass nach meiner Ueberzeugung die mir übersandten Proben Ihrer neuesten Bleistifte aus sibirischem Graphit nichts zu wünschen übrig lassen.

“Ich wünsche Ihnen daher Glück zu diesem Ergebniss Ihrer mehrjährigen Bemühungen um die Vervollkommenung eines für die Künstler so wichtigen Gegenstandes, und sage Ihnen im Namen derselben meinen Dank dafür.”

[TRANSLATION.]

“I may say to you, that the samples sent me of your new lead-pencils from Siberian graphite leave nothing to be desired.

“I congratulate you, therefore, on this result of your persevering efforts to perfect a material of so much importance to artists, and offer you in their name my best thanks.”

Collections of specimens of graphite interesting to science and art are now being prepared at the mines, intended to be offered to the mineralogical cabinets of the Smithsonian Institute in Washington and the Mining School of Columbia College in New York.

It is nineteen years since Alibert discovered the first specimens of graphite in the beds of mountain torrents in Asiatic Siberia, nine years since the contract was made to furnish the lead exclusively to the manufactory of A. W. Faber in Stein, and only now (1865) has it become possible to submit the pencils made from it to the American public.

Time only can show whether so much labor has been well employed.

THE END.







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